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Response
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Patent
Attorney's Docket No. 032287-001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
Johann PFEIFFER) Group Art Unit: 2664
Application No.: 08/981,519) Examiner: Steven Nguyen
Filed: March 17, 1998) Confirmation No.: 8175
For: METHOD AND BI-DIRECTIONAL)
DATA TRANSMISSION OVER A)
TWO-WIRE LINE)

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Technology Center 2600

SUPPLEMENTAL REQUEST FOR RECONSIDERATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Further to the response filed on November 25, 2002, enclosed please find a Declaration by Johann Pfeiffer (the inventor) pursuant to 35 U.S.C. § 1.132. Favorable consideration and allowance of the present application are respectfully requested.

Claims 2-11 remain pending.

As discussed during the personal interview conducted on August 1, 2002, and as discussed in previous responses, Applicant respectfully submits that one of ordinary skill in the art at the time of the invention would not have found it obvious to modify the disclosure of U.S. Patent No. 5,619,505 to Grube et al. ("Grube") to replace the use of echo cancellers to separate upstream and downstream transmissions with the use of time division multiplexing. As discussed in the attached Declaration, at the time of the invention ADSL communications were in the process of being standardized in the United States and Europe. At the time of the invention, the working versions of these standards

provided two different mechanisms for separating upstream and downstream transmissions of discrete multitone (DMT) modulated information, frequency division multiplexing (FDM) or echo canceling.

It is evident from the disclosure of Grube that the system of Grube was intended to comply with the working version of the standards at the time of the invention.

Specifically, Grube makes repeated references to ADSL requirements, the ADSL standards, and the 250 microsecond block size required by the working versions of the standards. See, for example, column 16, lines 8-10 "[p]er ADSL requirements"; column 17, lines 62-64 "[i]n an ADSL system, the frequency spectrum is transmitted once every 250 microseconds"; column 19, lines 5-9 "[t]he ADSL standard dictates"; column 20, lines 39-43 "given a frame cycle of 250 microseconds"; column 34, lines 44-46 "[t]he previous step is required due to ADSL requirements"; column 40, lines 19-22 "[t]he DMT encoder 812 will essentially used [sic] the ADSL encoding scheme"; and column 48, lines 60-63 "[i]n an ADSL system, this equates to 250 microseconds."

As discussed in the attached Declaration, due to the nature of DMT modulation, and the characteristics of the transmission medium, the 250 microsecond block time provided by the working versions of the standards, and employed by Grube, would result in an inefficient use of bandwidth. Specifically, the multiplexing of upstream and downstream channels carrying DMT modulated information would have required an extended prefix time to account for the line delay and to allow the previous DMT transients to ramp down and the new DMT transmission to ramp up to the proper level. To accommodate these characteristics of DMT modulation and transmission lines would have

required a prefix time from 22 to 40 percent of the 250 microsecond block time required by the working versions of the standards.

To overcome the characteristics of DMT modulation and the transmission lines, the present invention enlarges the block size from 250 microseconds to 625 microseconds. By enlarging the block size, the separation of upstream and downstream channels carrying DMT modulated information by time division multiplexing can be achieved in a more bandwidth efficient manner.

Since Grube does not provide any guidance as to how to separate upstream and downstream channels carrying DMT modulated information by time division multiplexing, and since one of ordinary skill in the art would have considered such a scheme undesirable due to the bandwidth inefficient nature of a system which would have been modified in this manner, it is respectfully submitted that the pending claims are allowable. Notice to this effect is earnestly solicited. If there are any questions regarding this response or the application in general, the Examiner is encouraged to contact the undersigned at 703-838-6578.

Respectfully submitted,

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Date: December 2, 2002



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REPLY TRANSMITTAL LETTER

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Enclosed is a reply for the above-identified patent application.

A Declaration of Johann Pfeiffer Pursuant to 37 C.F.R. § 1.132 is also enclosed.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

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